STATE OF CALIFORNIA
FISH AND GAME COMMISSION
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-publication of Notice Statement)

Amend Section 164
Title 14, California Code of Regulations
Re: Harvesting of Herring Eggs on Kelp

I. Date of Initial Statement of Reasons: May 11, 2003

II. Dates and Locations of Scheduled Hearings:

(a) Notice Hearing: Date: June 20, 2003
Location: Mammoth Lakes, CA

(b) Discussion Hearing: Date: August 2, 2003
Location: Long Beach/San Pedro, CA

(c) Adoption Hearing: Date: August 29, 2003
Location: Santa Rosa, CA

III. Description of Regulatory Action:

(a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

Under existing law, herring eggs on kelp (HEOK) may be taken for commercial purposes only under a revocable, nontransferable permit, subject to such regulations as the Fish and Game Commission shall prescribe. Current regulations specify permit limitations; season; fishing area; permittee categories and qualifications; permit conditions; royalty fees; permit application procedures; permit performance deposit requirements; gear, fishing and harvesting restrictions; fishing quotas; landing and processing requirements; and permit suspension conditions and procedures. In addition, current regulations limit the number of permits that can be issued.

The proposed regulatory changes will establish fishing quotas for the 2003-04 herring eggs on kelp fishing season. Herring eggs on kelp fishing occurs only in San Francisco Bay, and individual herring eggs on kelp quotas will depend on the total herring fishery quota for San Francisco Bay established by the Fish and Game Commission under Section163, Title 14, CCR.

Pacific herring occur in four primary spawning areas of California, in San Francisco Bay, Tomales Bay, Humboldt Bay, and Crescent City Harbor. The Department manages these populations as separate stocks. The commercial herring fisheries on these stocks are closely regulated through a catch quota system to provide for adequate protection and utilization of the herring resource.

The Department conducts annual assessments of the size of the spawning populations of herring in San Francisco and Tomales bays. In addition to the assessment of spawning biomass, the Department determines the age structure of the spawning population, examines growth and general condition, and monitors the biological aspects of the catch. These data serve as the basis for establishing fishing quotas for the next successive season.

Two principle stock assessment methods are currently used for monitoring the population abundance of Pacific herring in San Francisco Bay. These include a hydroacoustic survey, and a spawn deposition survey. The hydroacoustic survey, first used in the 1982-83 season, estimates the herring population by using sound transmission (visual integration) to determine the size and density of each school, or wave, of herring that come into the bay to spawn. The spawn deposition survey calculates a population estimate by measuring the area and density of deposited eggs each time a spawning event occurs.

The two surveys are used together to generate a combined annual biomass estimate for the season. The surveys are conducted simultaneously, but results of the two techniques are treated independently from one another during the spawning season. At the end of the season, results are reviewed on a school-by-school basis to obtain the most accurate biomass estimate of each spawning school. If both survey methods yield acceptable results for a given spawning event, then the biomass estimates are averaged. If the project staff encounters problems with one method while surveying a particular school (e.g., inclement weather, equipment or vessel failure, etc.), then results from the other method are used.

Over the past several years, hydroacoustic survey estimates have tended to be the higher of the two estimates, although general trends of increase or decrease are reflected in both surveys. In recent years, the trend of the two survey estimates has become increasingly disparate: the hydroacoustic survey indicates a fluctuating population and an increasing trend overall, while the spawn survey consistently indicates a lower estimate (see Supporting Document 3). Results from the 2002-03 survey estimates diverged both in size and in trend. The hydroacoustic survey indicated an increase in adult biomass, whereas the spawn deposition survey indicated a decrease in spawning output resulting in a significantly lower biomass estimate. The disparity cannot be resolved to derive a combined estimate using the methods described above, and may result in a biomass estimate that reflects an erroneous herring population number.

Concurrent with the disparity in the two surveys are the changes in population structure that have become more evident over the past six years. The Department believes that the survey results are symptomatic of a weakened population. Since the 1997-98 El Niño event, there has been no marked return of the older age classes (6-, 7-, and 8-year-old fish) to the herring population (see Supporting Document 4(a)). The smaller numbers of fish present in the population of older year classes may have resulted, recently, in increasing fishing pressure on the younger year classes available to the fishery (4- and 5-year-old fish). While the Department has seen 2-

and 3- year-old fish as recruits in the population each year, those same year classes have not returned in large numbers as 3- and 4-year-old fish, and subsequently as 4- and 5-year-old fish, recruiting to the fishery (see Supporting Documents 4(b) and 4(c)). Abundance of 2 and 3 year olds has been highly variable and difficult to predict (see Supporting Document 4(c)). In addition to the lack of large numbers of older fish, the Department has observed a slight decrease in the length and weight of fish at age of 4-, 5-, and 6-year-old fish present in the population. These population structure changes, fewer older age class fish, and smaller size at age, have become increasingly evident as it continues to become more difficult for the fishery to catch its quota each season.

The direct, indirect, and combined effects of environmental factors on the Pacific herring population are poorly understood. Pacific herring are susceptible to environmental conditions at various time scales (weather, seasonal, inter-annual, and regime). Weather events (1-5 days) such as storms can affect the behavior and distribution of adult herring. These short-term events can also be very damaging to the herring population, especially at the early life history stages. Seasonal events (2-3 months), such as changes in spawning temperature and coastal upwelling, can affect growth rates and reproductive success. Inter-annual events (1-2 years), such as El Niño and La Niña events, can play a pivotal role in the growth, recruitment, and distribution of herring. Regime events (5-30 years), such as changes in ocean circulation patterns, and temperature regime shift, can influence ecological conditions that may lead to changes in the overall population size and structure.

The herring population seems to be negatively affected by a regime shift that has incorporated damaging inter-annual events in the past twenty years. Since 1982, there have been four El Niño events (1982-83, 1992-93, 1997-98, and 2002-03). The 1982-83 El Niño, characterized as a relatively strong event, was followed by several years of relatively weak El Niño and La Niña conditions. Following this period, a severe drought, coupled with an extended warm water period (from 1990 to 1994), centered around the 1992-93 El Niño. This may have had devastating effects, and the loss of older age classes in the herring population coastwide has been attributed to this combination of events. A brief period of normal cool oceanic conditions signaled a potential boon for the herring population, until a severe El Niño developed in 1997-98. By mid-1998, cooler water returned and prevailed until mid-2002. During this time, oceanic conditions may have been beneficial for the herring population. However, the San Francisco population has not rebounded as expected, and it is unknown how the inter-annual and regime changes have fully affected the herring population. There is speculation that environmental conditions may have increased mortality, competition, susceptibility to disease, etc. Additionally, a mild El Niño developed in mid-2002, and the potential effects that this event may have had on the condition of the herring population are, as yet, not fully understood. Current oceanic conditions indicate that the 2002-03 El Niño is weakening, and models suggest that we may return to normal or cooler oceanic condition by mid-2003.

Changes in the age class structure of the population, and the current environmental conditions, coupled with the disparity of the results from the two biomass survey methods, soundly justify the caution the Department is exercising against deriving a combined biomass estimate for the season. The biomass estimate serves as the foundation for setting annual fishing quotas. Annual fishing quotas are conservatively set and have been limited to a total commercial catch of not more than 20 percent (exploitation rate) of the spawning biomass, to ensure adequate protection for the herring resource and provide for the long-term yield of the fishery. In practice, the exploitation rate has typically been set at 15 percent of the previous season's spawning biomass estimate. However, exploitation rates are not determined by a fixed mathematical formula, but are modified based on additional biological data collected each season, such as oceanic conditions, growth rates of herring, strength of individual year-classes, and predicted size of incoming year-classes (i.e., recruitment). For example, in response to poor recruitment and/or unfavorable oceanographic conditions, exploitation rates for the 1992-93, 1993-94, 1994-95, 1997-98, 2000-01, 2001-02, and 2002-03 fishing seasons in San Francisco Bay were set at less than 15 percent (12, 10, 12, 12, 10, 12, and 10 percent, respectively). Due to the difficulty in reconciling the results from each survey method, there is no 2003-04 combined spawning biomass estimate for San Francisco Bay. The Department has determined no substantial methodological or biological reason to explain the divergence in the trend of the two estimates.

Annual management recommendations to improve or provide for the efficient harvest and orderly conduct of the herring eggs on kelp fishery are solicited from interested fishermen and individuals at public meetings and from the Director's Herring Advisory Committee, which is composed of representatives from the commercial herring fishing industry. The proposed amendments to Section 164, Title14, CCR, reflect, in part, Department recommendations presented to the Director's Herring Advisory Committee.

The annual herring fishing quota is allocated solely to the herring fishery authorized pursuant to Section 163. Consequently, all herring eggs on kelp permittees must hold a herring permit. To fish herring eggs on kelp, a herring permittee must waive his or her herring fishing privileges under Section 163 and "exchange" his or her "share" of the herring quota for an equivalent herring eggs on kelp quota. The current factor used to convert an equivalent amount of resource from the sac roe fishery to the herring eggs on kelp fishery is 0.2237.

Within the overall quota in San Francisco Bay, separate quotas are established for each gill net platoon (i.e., December, Odd, and Even). The overall quota is divided among the three platoons in proportion to the number of permits in each platoon. In 1994, the commission decided to provide herring eggs on kelp permittees possessing "CH" permits with a herring eggs on kelp quota equal to approximately 0.79 percent of the overall quota.

The Department is proposing a no fishery option for the 2003-04 San Francisco Bay herring fishery. This results in a closure for the herring eggs on kelp fishery for the 2003-04 season. This is the most conservative option that the Department

may choose to recommend. The proposal of a fishery closure accounts for the lack of older age fish in the current population and the lack of strong recruitment of 4- and 5-year-old fish to the fishery, both of which are indicators of an already weakened stock. In spite of potential improvement of environmental conditions with the weakening of the 2002-03 El Niño, the San Francisco herring population may be suffering long-term effects from previous El Niño events. All of these factors combined provide a classic example of signs that a population is under stress. Therefore, the Department recommends a fishery closure as a precautionary measure to prevent a potential collapse of the population.

The Department has recommended that the Commission consider fishery closure for two other seasons in recent history: the 1993-94 and 1998-99 seasons. In both cases, the rationale for the Department's recommendation has been, in part, due to low combined biomass estimates, in the 20,000-ton range (26,000 and 20,000 tons, respectively). In the 1993 Pre-publication of Notice Statement, the Department proposed that a biological threshold level of 26,000 tons be established, below which no commercial fishing would be allowed. The Department also recommended that this threshold should be met as one of the conditions upon which the closed fishery would re-open. The Commission chose to provide for a minimal fishery, and no threshold limit has since been established. The Department does not have a recommendation for a biological threshold at this time. Several factors, such as population structure, relative strength of individual year classes, and environmental conditions, should be considered in developing a threshold, and any additional conditions upon which to base the re-opening of the fishery. The Department is currently in the process of completing a stock assessment of the herring population, as well as a peer review of the described methodology for determining biomass estimates. The Department will develop threshold and condition recommendations for the Commission to consider in the 2003 Pre-Adoption Statement.

In addition to the recommendation for a fishery closure for the 2002-03 season, the Department is providing for consideration by the Commission a second option of a fishery quota within a 2,000- to 3,000-ton range. This range is based on alternatives that the Department has reviewed but does not recommend as its preferred option. Adoption of a fishery quota within this range would lessen the seasonal economic and social impacts on some members of the commercial herring fishing industry; contribute to the local economy; maintain established markets for roe product; provide opportunities for fishery-dependent data collection; allow the Department to collect landing fees from those participating in the fishery to support continuing research and management activities; and provide additional information of herring spawning activities that are potentially reported by the fishing fleet. However, given the uncertainty of the current population structure and the potential recruitment to the fishery this season, continued harvest may result in additional stress on an already weakened population. The Department will provide the Commission additional information on quotas within this range prior to the 2003 Pre-Adoption Statement. If the Commission were to adopt a quota within this range, this would result in a 3.5- to 5.3-ton individual quota for a "CH" gill net permittee and a 1 to 1.4 ton individual quota for a non-"CH" gill net permittee.

Prior permittee status is given to permittees who meet all the requirements set forth in subsection (g) of these regulations and suspended kelp for herring eggs on kelp fishing during the immediately preceding season. Given the preferred option of no-fishery for the 2003-04 season, the Department is proposing that subsection (f)(1)(B) be amended to allow that permittees with prior permittee status for the 2003-04 season retain prior permittee status for the 2004-05 season.

Current regulations state that applications to the HEOK fishery are due no later than 5 p.m. on August 1 of each year. Subsection 164(i) states that each application shall include a performance deposit equal to 50 percent of the royalty price for the permit (i.e., allotment). The Department proposes that, if the no-fishery option is chosen, the performance deposit due with the applications on August 1st is waived for the 2003-04 season. Permittees must still file an application with the Department. If an alternative quota is chosen by the Commission, the Department proposes that performance deposits will be due to the Department's San Francisco Bay Area regional office no later than December 1, 2003 to allow for the time necessary for the final quota option to be adopted by the Commission.

A minor correction to the form number for the 2003-2004 Herring-Eggs-On-Kelp Permit Application is recommended for purposes of accuracy.

(b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority: Sections 5510, 8389, 8553, and 8555, Fish and Game Code.

Reference: Sections 7850, 7850.5, 8043, 8053, 8389, and 8550-8556, Fish and Game Code.

(c) Specific Technology or Equipment Required by Regulatory Change:

None.

(d) Identification of Reports or Documents Supporting Regulation Change:

(1) Minutes, Director's Herring Advisory Committee Meeting, March 25th and 26th, 2003, Sausalito, California.

(2) Informational Handout Packet for herring fisheries in (a) San Francisco Bay; (b) Tomales Bay; and (c) Humboldt Bay, Crescent City Harbor.

(3) Figure: Spawn Survey, Hydroacoustic Survey and Combined Biomass Estimates 1982-2002.

(4) Figures: Estimated number of fish at age for (a) 6, 7, and 8 year old herring; (b) 4 and 5 year old herring; and (c) 2 and 3 year old herring.

(e) Public Discussions of Proposed Regulations Prior to Notice publication:

(1) Director's Herring Advisory Committee Meeting, March 25th and 26th, 2003, Sausalito, California.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) Alternatives to Regulation Change:

1. Alternative 1.
This alternative is a fishing quota of 1,350 tons for San Francisco Bay, representing 10 percent of the 13,500 ton spawn survey estimate. In keeping with a conservative management strategy, the more conservative of the two Department survey estimates, the spawn survey estimate, would be utilized as a proxy for the 2002-03 biomass estimate upon which to base a fishery. An exploitation rate of 10 percent illustrates the concerns the Department has regarding the current age structure of the population and the uncertainty of the level of recruitment to the fishery for the 2003-04 season. The Department is not supporting this alternative based on the following concerns: 1) the Department has proposed closure of the fishery for two other seasons based on low biomass estimates of 21,532 and 20,000 tons (1993-94 and 1998-99 seasons respectively) and the Department cannot justify proposing a fishery based on the relatively lower estimate of 13,500 tons; and 2) there are concerns that the population cannot support a fishery at this level given the current age structure (i.e., fewer older age-class fish in the population and a lack of any sign of strong recruitment to the fishery). The quota in this alternative falls below the Option 2 quota range of 2,000 to 3,000 tons.

2. Alternative 2:
A fishing quota representing a percentage of the 2002-03 San Francisco Bay season combined biomass estimate. This alternative utilizes results from the two surveys using the traditional methodology of integrating the school-by-school estimates to arrive at a spawning biomass estimate. However, several concerns have prompted the Department to avoid using this estimate to represent the actual biomass in the bay: 1) the 2002-03 survey estimates consistently differ by marked amounts on a school-by-school basis; 2) the two survey estimates show different population trends following the 1997-98 season; and 3) the age structure of the current population indicates a potential decline in the ability of the population to support a fishery.

(b) No Change Alternative:
A no change alternative would provide a quota for the 2003-04 fishing season of 3,540 tons based on an exploitation rate of 10% of the biomass estimate for the 2001-02 season. The Department does not support this alternative based on the following concerns: 1) the 2001-02 biomass estimate is not a valid proxy for the 2002-03 biomass estimate, similar to alternatives (a)1. and 2. above; 2) the Department is concerned that the current population cannot support a fishery

based on an exploitation rate of 10% of the 2001-02 season biomass estimate; and 3) the sac roe fishery was only able to land 64% of their quota during the 2002-03 season. There is no indication (strong recruitment to the fishery) that the fishery will be able to land 3,540 tons during the 2003-04 season. The quota in a no-change alternative exceeds the Option 2 quota range of 2,000 to 3,000 tons.

(c) Consideration of Alternatives: In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purposes for which the regulation is proposed or would be as effective and less burdensome to the affected private persons than the proposed regulation.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made:

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states.

The proposed action will not have a long-term significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states, although the economic impact of a closure extending beyond one season would need evaluation. The Commission has made an initial determination that the adoption of the recommended regulations may have a temporary adverse economic impact directly affecting a number of California's small businesses. However, these economic impacts will not likely directly affect the ability of California small businesses to compete with businesses in other states. This is because most of the herring and herring eggs on kelp landings are transported out of State for "added value" processing and export (primarily to Japan and China).

The regulations proposed would directly affect approximately 10 commercial herring eggs on kelp fishermen and two processing plants in California, all of which are small businesses as defined under Government Code Section 11342.610. These direct impacts arise from interim management measures resulting in the close of the San Francisco herring eggs on kelp fishery for the

2003-2004 season only. Averaging herring eggs on kelp annual harvests and values from years 2001 and 2002, to represent nominal revenue potential for 2003-2004, we would project potential 2003-2004 ex-vessel revenues of approximately $688,300. Among the 10 herring eggs on kelp permittees, this represents potential individual ex-vessel revenues of approximately $68,830 annually on average, although deductions for the cost of doing business generally exceed 50% of value.

The proposed correction to the form number is being made for the sake of clarity and will not have an economic impact.

(b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California:

Statewide, the closure of the 2003-2004 herring fishery would result in a loss of approximately $1,383,500 of additional economic output foregone. This takes into account the multiplier effect that the herring eggs on kelp ex-vessel revenue creates as it cycles through California's economy. We project that each dollar of ex-vessel herring eggs on kelp revenue generates another $2.01 as it moves through other business sectors within California. Recognizing that each $1 million in commercial fishing revenue supports about 11.6 full and part-time jobs, we estimate the potential employment impact to be at most 36 jobs Statewide. This is because most of the "added value" processing of California herring takes place out of state, thus the actual employment impact to California would be much lower.

(c) Cost Impacts on a Representative Private Person or Business:

The Commission is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action. There are no new fees or reporting requirements stipulated under the proposed regulations.

(d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State:

None.

(e) Nondiscretionary Costs/Savings to Local Agencies:

None.

(f) Programs mandated on Local Agencies or School Districts:

None.

(g) Costs Imposed on Any Local Agency or School District that is Required

to be Reimbursed Under Part 7 (commencing with Section 17500) of Division 4:

None.

(h) Effect on Housing Costs:

None.

INFORMATIVE DIGEST\POLICY STATEMENT OVERVIEW

Under existing law, herring eggs on kelp (HEOK) may be taken for commercial purposes only under a revocable, nontransferable permit, subject to such regulations as the Fish and Game Commission shall prescribe. Current regulations specify permit limitations; season; fishing area; permittee categories and qualifications; permit conditions; royalty fees; permit application procedures; permit performance deposit requirements; gear, fishing and harvesting restrictions; fishing quotas; landing and processing requirements; and permit suspension conditions and procedures. In addition, current regulations limit the number of permits that can be issued.

The proposed regulatory changes will establish fishing quotas for the 2003-04 herring eggs on kelp fishing season. Individual herring eggs on kelp quotas will depend on the total herring fishery quota for San Francisco Bay established by the Fish and Game Commission under Section 163, Title 14, CCR.

The Department is recommending a closure for the 2003-04 San Francisco Bay herring fishery (Option 1). This results in a proposed fishing quota of **zero** tons. Conditions for reopening of the fishery will be outlined in the Department's 2003 Pre-Adoption Statement.

In addition to the recommendation for a fishery closure for the 2002-03 season, the Department is providing the Commission the option of considering a fishery quota within a 2,000- to 3,000-ton range (Option 2). If the Commission were to adopt a quota within this range, this would result in a 3.5- to 5.3-ton individual herring eggs on kelp quota for a "CH" gill net permittee and a 1 to 1.4 ton individual herring eggs on kelp quota for a non-"CH" gill net permittee. This range is based on alternatives the Department has reviewed but does not recommend as its preferred option. Additional information regarding quotas within this range will be provided to the Commission prior to the 2003 Pre-Adoption Statement.

Prior permittee status is given to permittees who meet all the requirements set forth in subsection (g) of these regulations and who suspend kelp in the immediately preceding season. If the no-fishery option is chosen for the 2003-04 season, the Department proposes that permittees with prior permittee status for the 2003-04 season retain prior permittee status for the 2004-05 season.

Royalty fees (i.e., performance deposits) are due to the Department on August 1st of each year. If the no-fishery option is chosen, the Department proposes that the performance deposit due with the applications is waived for the 2003-04 season. Permittees must still file an application with the Department. If an alternative quota is chosen by the Commission, the Department proposes that performance deposits be due to the Department's San Francisco Bay Area regional office no later than December 1st, 2003. to allow for the time necessary for the final quota option to be adopted by the Commission.

A minor correction to the form number for the 2003-2004 Herring-Eggs-On-Kelp Permit Application is recommended for purposes of accuracy.